SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES
for the
Butz Landfill Superfund Site

I. INTRODUCTION

Site Name: Butz Landfill Superfund Site ("Site")

Site Location: Jackson Township, Monroe County, Pennsylvania

Lead Agency: U.S. Environmental Protection Agency, Region III ("EPA")

Support Agency: Pennsylvania Department of Environmental Protection ("PADEP")

II. STATEMENT OF PURPOSE

This Explanation of Significant Differences ("ESD") is being issued in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, ("CERCLA"), 42 U.S.C. § 9617(c), and 40 C.F.R. § 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP'). The NCP requires the publication of an ESD when modifications to the remedial action selected in a Record of Decision ("ROD") are necessary, and such modifications significantly change, but do not fundamentally alter, the remedial action with respect to scope, performance, or cost.

This ESD modifies the remedy selected for Operable Unit 2 ("OU-2") of the Butz Landfill Site ("Site"), one of two remedies previously selected for this Site. This ESD requires the implementation of institutional controls and the modification of the groundwater performance standards. This ESD summarizes the information that supports these modifications and confirms that the remedial action for OU-2, as revised by these proposed modifications, will continue to comply with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621.

This ESD significantly changes, but does not fundamentally alter, the remedy selected in the OU-2 ROD with respect to scope, performance, or cost. The Administrative Record, containing the information EPA has relied upon or considered to date in proposing this ESD, was available for public review at the locations listed below during a thirty-day public comment period prior to the issuance of this ESD:

U.S EPA, Region III – 6th floor Docket Room
1650 Arch Street
Philadelphia, PA 19103

Hours: Monday - Friday 8:30am - 4:30pm
(215) 814- 3024

Pocono Township Branch Library
Route 611
Tannersville, PA 18372
Phone: (570) 629-5858

The Administrative Record was also available online at:

http://loggerhead.epa.gov/arweb/public/advanced_search.jsp

III. SUMMARY OF THE SITE HISTORY AND SITE CONDITIONS

Site Conditions

The Butz Landfill Site ("Site"), also known as the North Road Site, is located south of Camelback Mountain along North Road, in Jackson Township, Monroe County Pennsylvania (see Figure 1). The entire Site, which includes all areas where trichloroethylene ("TCE") contaminated groundwater from the original release at the landfill has come to be located, covers approximately 1.5 square miles and extends into Pocono Township. The closest village is Reeders, located approximately one mile south of the Site. A population of approximately 3,300 people live within three miles of the Site. Because of the presence of ski resorts and summer homes in the area, the population doubles during the tourist seasons of winter and summer. Primary uses of land in the area are farming and residential. There are no parks, wildlife refuges, historic and/ or archeological sites, or wild and scenic rivers in the vicinity of the Site. However, there is a recreational use of land in the vicinity of the Site, as it is located directly south of the ski slopes of Camelback Mountain.

The National Priorities List ("NPL") defines the Site as "an area of VOC-contaminated groundwater" underlying approximately 1.5 square miles of rural lands. The landfill, which was the source of contamination, occupies only 8.5 acres, from which the contamination spread into adjacent woods, meadows, and farmlands. The area where the landfill was previously located is used for the continued operation and monitoring of the groundwater pump and treat system, and for agricultural purposes by its owners.

History of Contamination

The property on which the Site is located was acquired by Russell and Luella Butz and Ernest and Emma Butz in March of 1963. Landfilling operations began in 1965. The disposed waste, the specific quantities of which are unknown, consisted of municipal waste, sewage sludge/liquids, and possibly some industrial wastes. Waste disposal took place at the Site without a permit until local citizen complaints alerted the Pennsylvania Department of Environmental Resources ("PADER") (now Pennsylvania Department of Environmental Protection or "PADEP"), which ordered the landfill closed in 1973. An initial Site investigation was performed by PADEP in early 1971. It revealed high levels of TCE in domestic wells to the south of the landfill. In 1986, PADEP and EPA initiated response activities, including Site inspections, public information meetings, residential well sampling, and the installation of water coolers and provision of bottled water to homes with contaminated well water. Bottled water was provided to 28 residences, and carbon filtration systems were installed at 22 residences. In November of 1991, EPA finalized the Remedial Investigation/Feasibility Study ("RI/FS"). The RI/FS was conducted: to determine the types, degrees and extent of Site related contamination; to estimate risk to public health and the environment as a result of the contamination; and to establish a set of possible alternatives for the remediation of the Site. As a result of the RI/FS, EPA determined that remedial action was necessary to address the groundwater contamination at

the Site, including provision of a permanent source of clean water to the residents impacted by the groundwater contamination. No remedial action was necessary for the surface water, sediment, or the surface area of the landfill.

The current location of the contaminated groundwater plume is presented in Figure 1. The contour of the plume encompasses the area where the most predominant Site contaminant, TCE, has been detected in concentrations above the maximum concentration levels ("MCL") of 5 ug/l. This concentration of TCE, 5 ug/l, is a Site performance standard for this chemical. Other contaminants were detected only in the wells located in the central part of the plume, not in the peripheral wells, although EPA continues to monitor these peripheral wells for all Site-related COCs.

IV. DESCRIPTION OF SELECTED REMEDY AND REMEDY IMPLEMENTATION

Remedy Selection

EPA has issued two Records of Decision ("RODs") for the Site. The first ROD, signed on September 28, 1990 and addressing OU-1 ("OU-1 ROD"), selected construction of a water line to provide a new source of water to the 49 residences affected by groundwater contamination emanating from the landfill.

The second ROD, signed on June 30, 1992 and addressing OU-2, selected a remedial action for the cleanup of the contaminated groundwater. The major components of this remedy were:

1. Installation of groundwater extraction wells immediately downgradient of the plume of TCE and along the downgradient perimeter of the area of contaminated groundwater.
2. Construction of piping necessary to transport the extracted groundwater to an appropriate treatment facility.
3. Construction of treatment systems and the treatment of the extracted groundwater to discharge quality.
4. Disposal of the treated groundwater by discharge to local surface water streams.
5. Off-site disposal of any residuals produced during the treatment process.
6. Construction of access roads, electric power lines, etc. as necessary.
7. Operation and maintenance ("O&M") of the groundwater extraction and treatment system until selected performance standards are met.

In addition to the RODs, EPA issued an ESD for OU-2 on August 27, 1999 (the "1999 ESD"), which called for the installation of the extraction wells along the zone where TCE concentrations in the groundwater were the highest, ranging from 200 ug/l to 5,000 ug/L. The ESD also changed the in-situ performance standards for the groundwater contaminants to be the new state standards for methylene chloride and chlorobenzene and the MCLs established pursuant to the federal Safe Drinking Water Act, 42 U.S.C.§300f, et seq., for all the other contaminants rather than the background levels called for in the June 30, 1992 Record of Decision.

Remedy Implementation

Construction activities for the OU-1 ROD waterline began in 1992 and were completed in December of 1993. The waterline construction included the installation of approximately eight miles of ductile iron trunk line, the drilling and/or re-drilling of three groundwater supply wells, the construction of a water storage tank and pump house, the re-alignment of a township road to provide access to the well-head site, the connection of the water supply's 49 service users, and the grouting of formerly-used groundwater supply wells. The system was initially maintained by EPA through the U.S. Department of Interior's Bureau of Reclamation ("BOR"). EPA donated the waterline to the Pocono/Jackson Joint Water Authority ("PJJWA"), which continues to supply residents in the area with drinking water.

Construction activities for the OU-2 ROD groundwater extraction and treatment system began in June of 2000, with groundwater treatment beginning on April 11, 2001. The original treatment system consists of the following features:

- A treatment building that houses a low profile air stripper, an off-gas carbon treatment system, and a computerized control system.
- An improved access road to the treatment building and a new road between the extraction wells, treatment building, and discharge structure.
- Three extraction wells (155, 175, and 195 feet deep) and a pump testing system to determine expected yields and concentration of contaminants in the water from each well.
- Three new monitoring wells and five retrofitted monitoring wells.
- Approximately 3,000 linear feet of double wall piping, power cables, and control cables between the extraction wells and the treatment building.
- A treated water conveyance system and discharge structure with new wetlands.

A Preliminary Close-Out Report ("PCOR") was signed on June 20, 2001, and the Site was declared "Construction Complete" on that same date. The first, second, and third Five Year Reviews ("FYRs"), issued on September 17, 1996, September 28, 2001, and September 28, 2006, confirmed the effectiveness of the selected remedies for both OU-1 and OU-2.

Operation and maintenance ("O&M") of the groundwater extraction and treatment system is currently performed by EPA's contractor, Tetra Tech NUS ("TtNUS"). The treatment system is regulated by a series of alarms that cause the system to shut down in the event of a malfunction. TtNUS performs regular inspections, sampling, and minor repair work at the Site. The O&M responsibilities are expected to transfer to PADEP in the August 2011 in accordance with the State Superfund Contract between EPA and PADEP, dated October 28, 1999.

In 2009, EPA performed a pilot study to investigate whether the groundwater cleanup could be enhanced by conducting in-situ injections of chemical agents into the contaminated plume. EPA installed two new wells in the vicinity of the treatment building and evaluated the

impact of injections on the contaminant concentrations in the groundwater plume. At the time of the issuance of this ESD, EPA has been reviewing the results of this study with PADEP.

V. DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR SUCH DIFFERENCES

Institutional Controls

In the course of performing the most recent FYR, issued September 28, 2006, EPA determined that it is necessary to provide explicitly for institutional controls for protection of the installed remedies and to prohibit use of groundwater to the extent necessary to assure protection of human health and the environment. The remedy selected by EPA in the 1992 OU-2 ROD required engineered structures to extract, convey, and treat the contaminated groundwater. The remedy also required long-term operation and maintenance of the extraction and treatment system. However, the OU-2 ROD did not explicitly provide for institutional controls to ensure the continued integrity of the engineered structures. The remedy also did not ban use of the contaminated groundwater for drinking, showering, or other potable uses. This ESD prohibits the use of contaminated water for these purposes until the selected groundwater performance standards are met. Figure 1 depicts the estimated extent of the contaminated plume above the performance standards for implementation of the institutional controls described below. The engineering structures to be protected by the institutional controls selected in this ESD are presented in Figure 2.

The institutional controls shall include the following restrictions:

1. Groundwater at the Butz Landfill Site contaminated with TCE and/or other COCs that exceed(s) any of the selected performance standards shall not be used for drinking water, bathing or any other potable use.

2. The estimated area of contaminated groundwater identified in Figure 1 and structures associated with the groundwater treatment plant identified in Figure 2 shall not be used in a way that has a potential to adversely affect or interfere with the efficacy and function of: the Butz Landfill Treatment Plant; the underground extraction and discharge piping; the extraction, monitoring, and injection wells; or the treated groundwater discharge areas.

The required institutional controls could be implemented through property use controls such as easements and restrictive covenants and/or governmental controls such as zoning ordinances. For example, the institutional controls recorded with the deeds for the relevant properties could be implemented through an environmental covenant between EPA and the current owner of a relevant property, pursuant to the Pennsylvania Uniform Environmental Covenants Act, 27 Pa.C.S.A. §6501, et seq. In addition, PADEP may issue an Administrative Order ("512 Order") pursuant to Sections 512(a) and 1102 of the Pennsylvania Hazardous Sites Cleanup Act ("HSCA"), 35 P.S. §§ 6020.512(a) and 6020.1102, which grants PADEP the authority to issue such orders precluding or requiring cessation of an activity or activities at a facility which PADEP finds would disturb, or is inconsistent with, a response action being implemented at that facility.

Groundwater Performance Standards

There are several changes required to in-situ groundwater performance standards that were set in the 1999 ESD (page 4). The performance standard for a chemical called "trans-1,2-dichloroethane" was listed as 0.005 mg/L. This chemical name was erroneous and this ESD corrects the name of the compound to "trans-1,2-dichloroethene" with a performance standard of of .1 mg/L. In addition, EPA has reviewed the Chemicals of Concern ("COCs") for the groundwater and conducted a risk assessment using the current data, exposure factors, and toxicity factors. As a result, one additional COC is being added to the list of performance standards, i.e., cis-1,2-dichloroethene. Lastly, the MCL for chloroform has been reduced from 0.1 mg/L to .08 mg/L. The performance standards for the other COCs remain at the levels which were selected in the 1999 ESD (all of those were based on MCLs except for the standards for methylene chloride and chlorobenzene; the performance standards for these last two contaminants were based on regulations issued pursuant to Pennsylvania's Land Recycling and Environmental Remediation Standards Act, which were found to be relevant and appropriate for those two chemicals). See Table 1 for a listing of ARARs-based performance standards that apply to the in-situ groundwater remediation. In addition to these performance standards, there are two risk-based performance standards, which are set forth in the paragraph following the chart.

TABLE 1

ARAR-Based Performance Standards

Contaminant of Concern	2011 (MCL or State Standard ug/l)
Trichloroethene	5 ug/l
Vinyl Chloride	2 ug/l
Cis-1,2-dichloroethene	70 ug/l (new COC)
1,1-dichloroethene	7 ug/l
Trans 1,2-dichloroethene	100 ug/l (corrected name and #)
Benzene	5 ug/l
Ethylbenzene	700 ug/l
Tetrachlorethene	5 ug/l
Toluene	1000 ug/l
Carbon Tetrachloride	5 ug/l
Chloroform	80 ug/l (new, lower number)[1]
Methylene Chloride	3 ug/l
Chlorobenzene	55 ug/l

[1] This is the MCL for total trihalomethanes

This ESD requires that the remediation of groundwater at the Site will continue until: (1) the ARARs-based performance standards for individual contaminants, specified above, are achieved; (2) the cumulative risk presented by all remaining Site-related compounds in the groundwater is at or below the 1 X 10^{-4} cancer risk level; and (3) the non-cancer hazard index

("H.I."), which is the sum of the chemical-specific, target-organ-specific hazard quotients for these compounds, is equal to or less than 1. The in-situ performance standards for OU-2 will include both the MCLs set forth in Table 1, above, and the risk-based performance standards set forth in this paragraph.

Because the existing treatment technology effectively addresses the newly-identified COC without any modifications, these changes in the performance standards do not result in any measurable change in the cost or time necessary to implement the remedy.

The change in performance standards also results in a change in the applicable or relevant and appropriate requirements ("ARAR") for the groundwater cleanup. For the newly identified COC (i.e., Cis-1,2-dichloroethene), the current MCL is now selected as an ARAR. The ARAR for Chloroform has been made more stringent. The corrected name has been supplied for the contaminant Trans 1,2-dichloroethene, along with the correct MCL as the ARAR. ARARs for the other contaminants remain as selected in the 1999 ESD, and ARARs for other portions of the remedy (e.g., the Clean Water Act discharge) are not affected by this ESD.

These modifications to the OU-2 remedy do not fundamentally alter the basic features of the remedy previously selected for OU-2 with respect to scope, performance, or cost. The modifications provide for the implementation of institutional controls at the Site to protect the integrity of the engineered structures. The institutional controls will also prohibit drinking, bathing, or other potable uses until the performance standards are met. The long-term effectiveness (i.e., performance) of the existing remedy will be enhanced by providing greater assurance that the remediation strategy being implemented at the Site will not be compromised by unacceptable land uses. EPA has made the determination that modifications to the OU-2 remedy requiring the institutional controls and new performance standards discussed above are warranted to ensure the protection of human health and the environment.

VI. SUPPORT AGENCY COMMENTS

Pursuant to 40 C.F.R. § 300.435(c)(2), EPA has coordinated with PADEP with respect to the changes that this ESD makes to the OU-2 remedy set forth in the OU-2 ROD and the 1999 ESD. EPA received a letter from PADEP, dated June 30, 2011, concurring with this ESD.

VII. STATUTORY DETERMINATIONS

EPA has determined that the OU-2 remedy selected in the OU-2 ROD and the 1999 ESD and as modified by this ESD complies with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621. EPA has determined that the OU-2 remedy set forth in that ROD and ESD, as revised by this second ESD, will remain protective of human health and the environment and will meet the Federal and State requirements that are applicable or relevant and appropriate to the remedial.

VIII. COMMUNITY INVOLVEMENT

From April 15, 2011 to May 17, 2011, EPA held a 30-day public comment period on the then-proposed modifications to the OU-2 remedy previously selected for the Site. Since EPA did

not receive comments on that draft ESD during the public comment period, this ESD is signed and issued by EPA as a final decision.

The Administrative Record for this decision contains all information that EPA considered or relied upon in making its remedy decision, including the draft ESD.

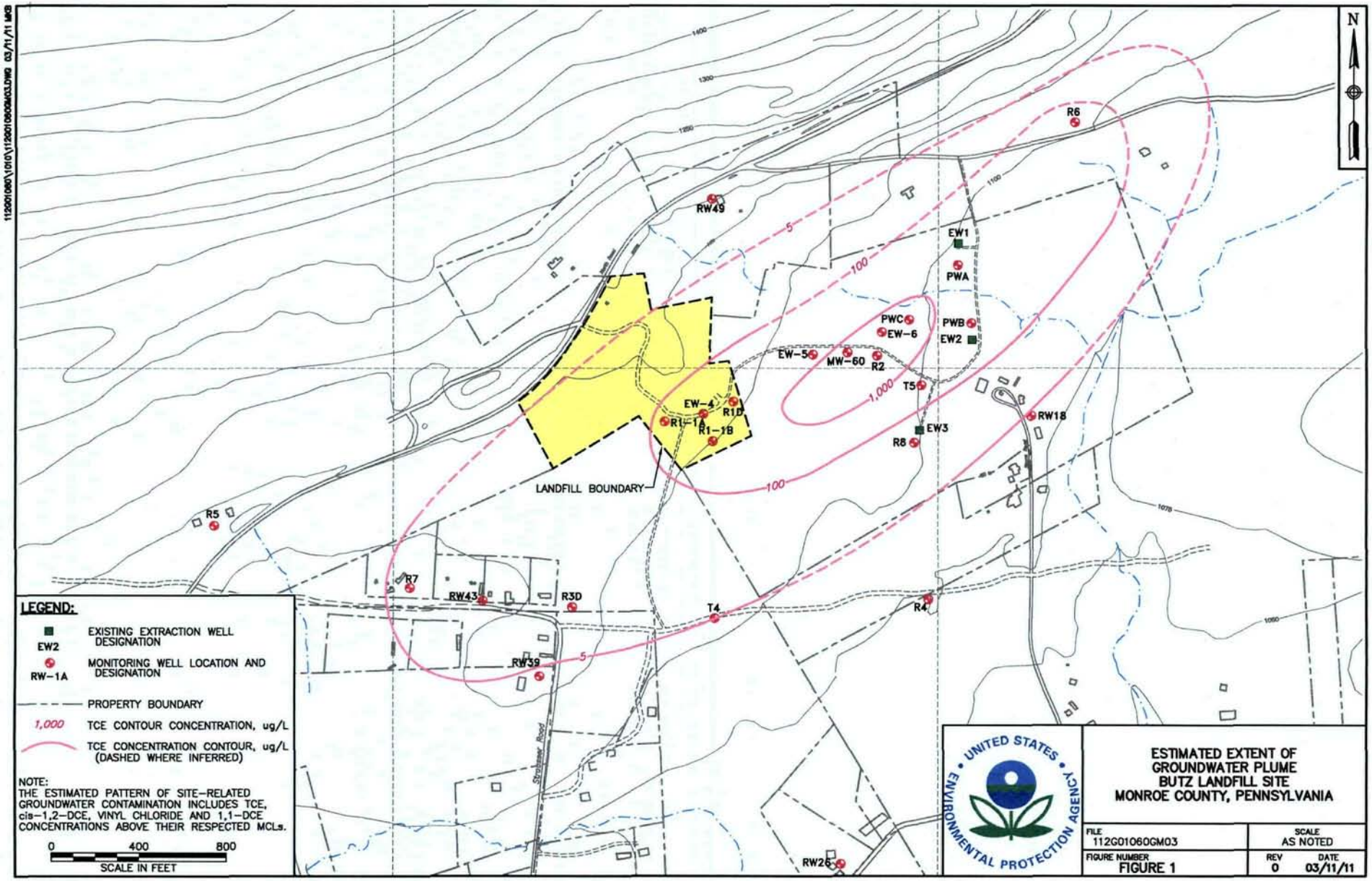
IX. SIGNATURE

This Explanation of Significant Differences modifies the OU-2 selected remedy set forth in the OU-2 ROD and 1999 ESD for the Butz Landfill Superfund Site to include institutional controls and to change the in-situ performance standards for cleanup of groundwater.

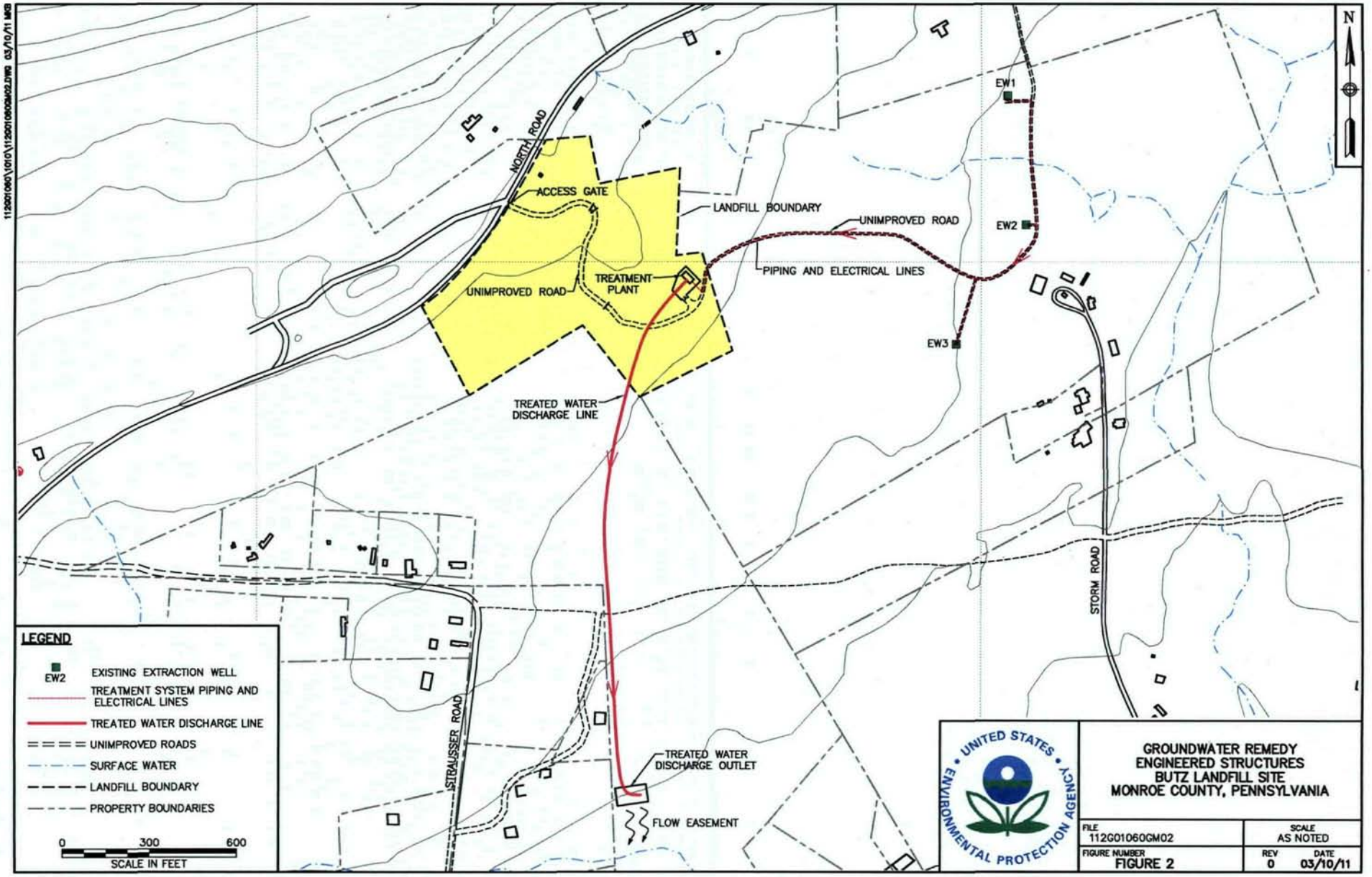
Approved By:

Ronald J. Borsellino, Director
Hazardous Site Cleanup Division
EPA Region III

July 27, 2011
Date


N
RW49
R6
EW1
PWA
PWC
EW-6
PWB
EW2
EW-5
MW-60
R2
T5
EW-4
R1D
R1-1A
R1-1B
EW3
R8
RW18
LANDFILL BOUNDARY
R5
R7
RW43
R3D
T4
R4
RW39
RW26
5
100
1,000
100
5
LEGEND:
EW2 EXISTING EXTRACTION WELL DESIGNATION
RW-1A MONITORING WELL LOCATION AND DESIGNATION
PROPERTY BOUNDARY
1,000 TCE CONTOUR CONCENTRATION, ug/L
TCE CONCENTRATION CONTOUR, ug/L (DASHED WHERE INFERRED)
NOTE:
THE ESTIMATED PATTERN OF SITE-RELATED GROUNDWATER CONTAMINATION INCLUDES TCE, cis-1,2-DCE, VINYL CHLORIDE AND 1,1-DCE CONCENTRATIONS ABOVE THEIR RESPECTED MCLs.
0 400 800
SCALE IN FEET
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ESTIMATED EXTENT OF GROUNDWATER PLUME
BUTZ LANDFILL SITE
MONROE COUNTY, PENNSYLVANIA
FILE 112G01060GM03
SCALE AS NOTED
FIGURE NUMBER FIGURE 1
REV 0
DATE 03/11/11

AR302090


NORTH ROAD
ACCESS GATE
LANDFILL BOUNDARY
UNIMPROVED ROAD
EW1
EW2
EW3
PIPING AND ELECTRICAL LINES
TREATMENT PLANT
UNIMPROVED ROAD
TREATED WATER DISCHARGE LINE
STRAUSSER ROAD
STORM ROAD
TREATED WATER DISCHARGE OUTLET
FLOW EASEMENT
N
LEGEND
EW2 EXISTING EXTRACTION WELL
TREATMENT SYSTEM PIPING AND ELECTRICAL LINES
TREATED WATER DISCHARGE LINE
UNIMPROVED ROADS
SURFACE WATER
LANDFILL BOUNDARY
PROPERTY BOUNDARIES
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SCALE IN FEET
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GROUNDWATER REMEDY
ENGINEERED STRUCTURES
BUTZ LANDFILL SITE
MONROE COUNTY, PENNSYLVANIA
FILE 112G01060GM02
SCALE AS NOTED
FIGURE NUMBER FIGURE 2
REV 0
DATE 03/10/11

AR302091